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PRINCE LOBEL

August 9, 2010

Zoning Board of Appeals
Town of Westford
55 Main Street
Westford, MA
Attn: Ross Altobelli

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| RE: | Application for Use Variance and Dimensional Variance |
| Address: | 22 Griffin Street, Westford, Massachusetts |
| | Assessor's Map 43, block 43, Lot 10 (the "Property") |
| Applicants: | T-Mobile Northeast, LLC (the "Applicant") |

Dear Honorable Members of the Zoning Board of Appeals:

This firm represents the Applicant in connection with its application for Use and Dimensional Variances from the Town of Westford Zoning Board of Appeals (the "Board"). The Board retained David Maxson ("Maxson") as a consultant to review the application, and he reviewed the application documents and supplemental materials filed by the Applicant in support of the proposal, and submitted his peer review reports. He submitted an initial report, dated May 14, 2010, and a supplemental report, dated July 16, 2010. The subject correspondence and attachments set forth the Applicant's response to the two Maxson reports.

Maxson's initial report focused on Section 6.2.3 of the Town of Westford Zoning Bylaw ("Bylaw") which sets forth a prioritized list of locations for wireless communication facilities within the Town of Westford and requested supplemental information about the alternative sites that were investigated by the Applicant. Concurrent with the Applicant's receipt of the initial report, the Applicant submitted to the Board supplemental information addressing in more detail Sections 6.2.3 and 6.2.9 of the Bylaw. Specifically, the Applicant addressed the prioritized list of locations set forth in the Section 6.2.3 of the Bylaw: 1) use of existing wireless communication facilities; 2) use of existing structures, and 3) construction of a new wireless communication facility.

Supplemental Alternative Site Analysis

In response to Section 6.2.3.1 of the Bylaw, the supplemental materials specifically analyzed whether existing wireless communication facilities within Westford or adjacent Towns could be utilized to close the significant gap in coverage. T-Mobile's radio frequency engineers submitted evidence why existing wireless communication facilities within Westford or adjacent Towns could not be utilized to close the significant gap in coverage and Mr. Maxson, in his supplemental report, does not dispute that existing wireless communication facilities within

Westford or adjacent Towns cannot be utilized to close the significant gap in the Applicant's network.

Similarly, the Applicant submitted a detailed alternative site analysis statement which demonstrated that there is not an existing tall structure, such a water tank or utility pole, located in proximity to the gap area that could be utilized to provide the required coverage. In Maxson's supplemental report, he agrees and concludes that his "...view of the area in person and on aerial orthophotography turned up no likely existing structures". Therefore, based on the evidence submitted by the Applicant and peer review consultant, there is no existing structure that can be utilized to provide the required coverage near the gap area.

With respect to other alternative sites that were evaluated for new tower facilities, the Applicant submitted an alternative site analysis detailing fourteen (14) properties that were evaluated and rejected. In Maxson's supplemental report, he requested that the Applicant evaluate a fifteenth candidate, a residential property located near the summit of the hill located to the south of the proposed site (the "summit house"). The Town Planner, Ross Altobelli, also requested, via email dated July 29, 2010, the Applicant to evaluate two additional candidates: 4-H Fairgrounds and Butterbrook Golf Course.

Regarding the summit house, the property is located at 7 Overlook Circle. It contains a traditional residential dwelling and is located within the Residential A zoning district. As such, any proposed wireless communication facility on the property will require a use variance pursuant to the Telecommunications Act of 1996. A radio frequency propagation map of a proposed 65' facility at this location is included and attached hereto as **Exhibit 1**[1]. The property and house sits near the summit of the hill as more fully described in the radio frequency affidavit submitted by the Applicant, the technology is line of sight technology so any proposed tower on this property will need to clear the tree canopy by at least 10-15 feet to ensure that the signal can propagate. In our opinion, the proximity of a tower near the ridge line of the hill increases the potential visibility of the tower to more of the surrounding area, even if the proposed tower only clears the tree canopy by approximately 15 feet. Moreover, a shorter tower that clears the tree canopy by approximately 15' has very limited co-location potential because any future carrier's antennas may be mounted below the tree canopy and, therefore, unable to propagate the signal sufficiently to fill in the gaps in coverage. Pursuant to Section 6.2.9 of the Bylaw, new towers should be designed to accommodate multiple users, and thereby reduce the overall number of additional towers required within a general area. Given the following: i) a shorter tower, with limited co-location potential, located near the summit of a hill will still exceed the surrounding tree canopy, and, therefore, still be visible to the surrounding areas, and ii) it will require similar zoning relief since there is a residential dwelling on the property and the property is located within a Residential zoning district, the Applicant does not believe that the property at 7 Overlook Circle, assuming the property owner would even lease a portion of the land to the Applicant for such a facility, is viable alternative to the subject Property.

Regarding the 4-H Fairgrounds site (51 South Chelmsford Road), which is located northeast of the Property closer to the Westford-Chelmsford line, the Applicant has analyzed whether a 100'

[1] The Applicant based its projected height on aerial photographs, but the Applicant would need to field verify the tree canopy height and surrounding obstructions to ensure that the site is unobstructed at 65' height. Such obstructions could result in a minor (10-15 foot) modification to tower height.

or 150' tower on that property would be able to fill the significant gap in the Applicant's network. Radio frequency propagation maps showing the anticipated coverage from a 150' and 100' tower on the 4-H Fairgrounds property are attached hereto as **Exhibit 2**. As depicted in the propagation maps, a new tower at 100' at this location will not fill in the significant gaps along Routes 110 and 225 and along Old Lowell, Griffin or the southern portion of Acton Road. Similarly, a 150' tower at this location provides some coverage to Route 110, Old Lowell, Griffin and Acton roads, but a significant gap will remain along Route 225 and the surrounding area. Like the proposed site, the 4-H Fairgrounds are located within a Residential zoning district so a use variance would be required, as would dimensional variances depending on location and height. Moreover, a second tower will be necessary to fill in the remaining coverage gap areas, and since the remaining gap areas are located in a pre-dominantly residential area, the second tower will also require use variance relief. Since the requisite coverage can be provided from one facility located on the Property, the Applicant submits that the proposed facility is a lesser intrusive means of filling the coverage gap than the 4-H alternative, which would require multiple towers.

Similarly, the Applicant evaluated the Butterbrook Golf Course property (157 Carlisle Road), which is located south of the Property and Route 225, closer to the Westford-Acton line. Like the 4-H property, the Applicant analyzed whether a 100' or 150' tower on the golf course would be able to fill in the significant gap in coverage. As shown on the propagation maps, attached hereto as **Exhibit 3**, a new tower at 100' or 150' will provide some coverage along Route 225 and Acton Road, but the coverage is predominantly redundant coverage with an existing T-Mobile site (4DEB477A) which is located in Acton, just over the Westford-Acton border. Additionally, the golf course is located within a Residential zoning district so a use variance would be required, as would dimensional variances depending on location and height. Since the golf course provides redundant coverage, it is not a viable alternative, and the existing gap areas that the Applicant seeks to fill using the proposed facility located on the Property will remain. As such, even if the Applicant installed a tower at the golf course, a second tower would still be necessary to fill in the remaining significant gaps in network coverage. Since the requisite coverage can be provided from one facility on the Property, the Applicant submits that the proposed facility is the only means of filling the coverage gap, and that the golf course alternative is unsuitable since it provides redundant coverage.

Additionally, Mr. Maxson, in his Supplemental Report, commented on the viability of the Jack Walsh recreational fields, which is Town-owned property that abuts the Property. The Jack Walsh property was evaluated by the Applicant and included in the Applicant's alternative site analysis. It was rejected, in part, because the Town has not issued a Request for Proposal for that site so that property is not available to the Applicant. Additionally, as shown on the coverage maps attached hereto as **Exhibit 4**, a 100' tower on the Jack Walsh property would not close the significant gap along Acton Road (Route 27) and the surrounding areas. Similarly, a 150' tower provides more coverage to the surrounding areas, but still does not cover Acton Road solidly, which will necessitate a second site to ensure that Acton Road (Route 27) and the surrounding area are covered. Moreover, a new tower located on the Jack Walsh site will be more visible since the open, unobstructed nature of the site will fail to buffer the tower from public view. As demonstrated by the photo-simulations submitted by the Applicant, the visibility of the proposed tower located on the Property is extremely limited. Lastly, even if the coverage footprint was comparable to the subject facility on the Property, which it is not, the Applicant does not consider a new tower on the Jack Walsh property a viable alternative. The Town has

previously denied an application by the Applicant to co-locate on and next to a municipal water tank off Hunt Road, which is also located in a residentially zoned area. Given the futility of seeking a permit to co-locate on an existing municipally-owned water tank located in a residentially zoned area, it seems unlikely to the Applicant that an application for a new tower on the Jack Walsh property would be well received.

Alternative Technologies

In addition to alternative sites, Mr. Maxson also evaluated the appropriateness of alternate technologies. Mr. Maxson agrees that a home wireless router ("femtocell") is not an appropriate solution for the coverage problems. A femtocell only addresses the private coverage needs of a very small number of subscriber's own cell phone simultaneously, and only within the home or a few yards of it so it would not be appropriate to address the gaps in the Applicant's network coverage in this matter. Similarly, Mr. Maxson concludes that a Distributed Antenna System ("DAS") is also not a strong candidate, because of the limited density of development, to close the gap in coverage within the subject area.[2]

Significant Gap in Coverage and Personal Coverage Check Maps

Lastly, Mr. Maxson wonders aloud what level of coverage constitutes a gap in coverage that is significant enough to be covered by the Act. The standard for establishing whether a gap exists is established by Sprint Spectrum L.P. v. Willoth, 176 F.3d 630 (2nd Cir. 1999). Despite being a 2nd Circuit case, it is widely cited by District Courts within the 1st Circuit (which includes the Commonwealth of Massachusetts), as well as within 1st Circuit decisions. Willoth provides that "the plain focus of the statute [TCA] is on whether it is possible for a user in a given remote location to reach a facility that can establish connections to the national telephone network. In our view, therefore, the most compelling reading of subsection B(i)(II) is that local governments may not regulate personal wireless services facilities in such a way as to prohibit remote users

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[2] Although Mr. Maxson agrees with the Applicant's radio frequency engineer that DAS is not an appropriate solution for the gap area that is the subject of this application, he disagreed with some of the technical information submitted by the Applicant's engineer. Without going through each item point for point, we will address two main points with respect to the DAS alternative. First, with respect to the statement regarding the power loss of the DAS system, the Applicant should have more fully articulated its concern. If T-mobile were to add channels to a single path at its equipment location, the combining required would in fact reduce the power per channel by approximately 50 percent due to the insertion loss of the hybrid combiners used. Since the monitoring point and/or use of scalable power amplifiers can affect this, we understand why Mr. Maxson did not agree with our position, but we wanted to clarify the comment for the Board. Similarly, the presence or absence of fiber is important in analyzing the logistic and financial feasibility of a DAS network, but it is not a prerequisite. The second issue that caused some confusion involved whether the Federal Communications Commission ("FCC") has jurisdiction over the use of DAS technology within the zoning context. Without belaboring the point, there is a case law that supports the proposition that zoning bylaw provisions that set forth a preference for alternate technologies are preempted because they interfere with the federal government's regulation of technical and operational aspects of wireless telecommunications technology, a field that is occupied by federal law. N.Y. SMSA Ltd. P'ship v. Town of Clarkstown, 603 F. Supp. 2d 722 (2010). However, there is no need to more specifically analyze whether the Board can require the Applicant to utilize a DAS network, because Mr. Maxson agrees with the Applicant's technical conclusion that "because of the limited density of development, the subject area is not a strong candidate for a utility pole mounted solution."

from reaching such facilities. In other words, ***local governments must allow service providers to fill gaps in the ability of wireless telephones to have access to land-lines***." Willoth, at 642-643. (Emphasis added). Further, courts have found that a gap exists where signal strength is insufficient to allow wireless users to "reliably initiate or hold calls". Cellco Partnership v. Town of Grafton, 336 F.Supp.2d 71, 73 (D.Mass. 2004). In Cellco, the Court determined that there was a significant gap in coverage finding that "[a] gap in wireless services exits when a remote user of those services is unable to either connect with the land-based national telephone network, or to maintain a connection capable of supporting a reasonably uninterrupted communication." Cellco, at 82-83 (Internal citations and quotations omitted).

Further, because the focus of the analysis is the ability of the remote user to reliably access the network, the consideration of in-building service is also appropriate. Cases have examined the need to provide different levels of service, on-street, in-vehicle and even in-building coverage. In U.S.C.O.C. v. Town of Dunbarton, 2005 U.S. Dist. LEXIS 6789, (D. N.H. 2005), the Court noted that "[i]n evaluating the extent of a gap in coverage, courts have considered the availability of both in-vehicle and in-building service." (*citing* Sprint Spectrum, . L.P. v. Willoth, 176 F.3d 630, 643 (2d Cir. 1999)). Further finding that "the ZBA's conclusion, based on town counsel's representation, that in-home service was not pertinent for purposes of satisfying the requirements of the TCA was legal error and was also inconsistent with the evidence of record." Dunbarton, at *13-14. At present, the number of landline telephone subscribers across the nation is declining each year while the number of wireless users increases. Accordingly, it is a critical design objective for the Applicant to ensure the ability of subscribers to utilize their mobile devices on the roads, and within their homes and other buildings.

As discussed in the "Affidavit of Radio Frequency Expert" by Scott Heffernan, dated May 6, 2010, the Personal Coverage Check (PCC) maps on the T-Mobile website are a sales tool and do not contain the same specificity as the radio frequency propagation maps used to design the network and submitted to Boards as part of the permitting process. Moreover, the generic labeling of Excellent, Very Good, Good, Moderate and None do not specifically correlate to specific dBm signal strength. The Applicant's network design threshold for in-building coverage is -76 dBm, and for in-vehicle coverage is -84 dBm. If the signal strength in a particular area falls below -84 dBm, then a T-Mobile user would not have a reasonable expectation of initiating or receiving a call in their car. Similarly, the end user would not have a reasonable expectation to initiate or receive a call within a building. Those design thresholds ensure that a customer will have reliable in-vehicle or in-building coverage within a certain geographic area. As discussed in the Affidavit, in a majority of the intended coverage objective, the service gradient shows a level of "moderate" that is defined on the website as coverage where "you should usually be able to place calls outdoors, occasionally in a car, but only sometimes indoors." This level of outdoor service is below the Applicant's minimum design threshold of -84 dBm, which is required for reliable in-vehicle coverage.

By its written submissions and testimony, the Applicant has demonstrated that it has a significant gap in its coverage network. The Applicant's written submissions, including radio frequency propagation maps, and testimony are "credible, authoritative, and reasonable." See Nextel Communications of the Mid-Atlantic, Inc. v. Town of Sudbury, 2003 U.S. Dist. LEXIS 2642, *37 (internal citation omitted). These radio frequency propagation maps clearly depict "where signal strength is non-existent or, at best, minimal based on objective criteria." Moreover, "such maps are commonly relied upon by wireless carriers, zoning boards, and

courts to determine the extent of coverage in a given locality." Town of Sudbury at * 37 citing Town of Lincoln, 107 F. Supp.2d at 119. Moreover, the credible testimony of T-Mobile's radio frequency engineer provides "compelling evidence" that the T-Mobile's coverage "is inadequate to meet the requirements of the TCA" under the Applicant's FCC license. Town of Sudbury at * 38.

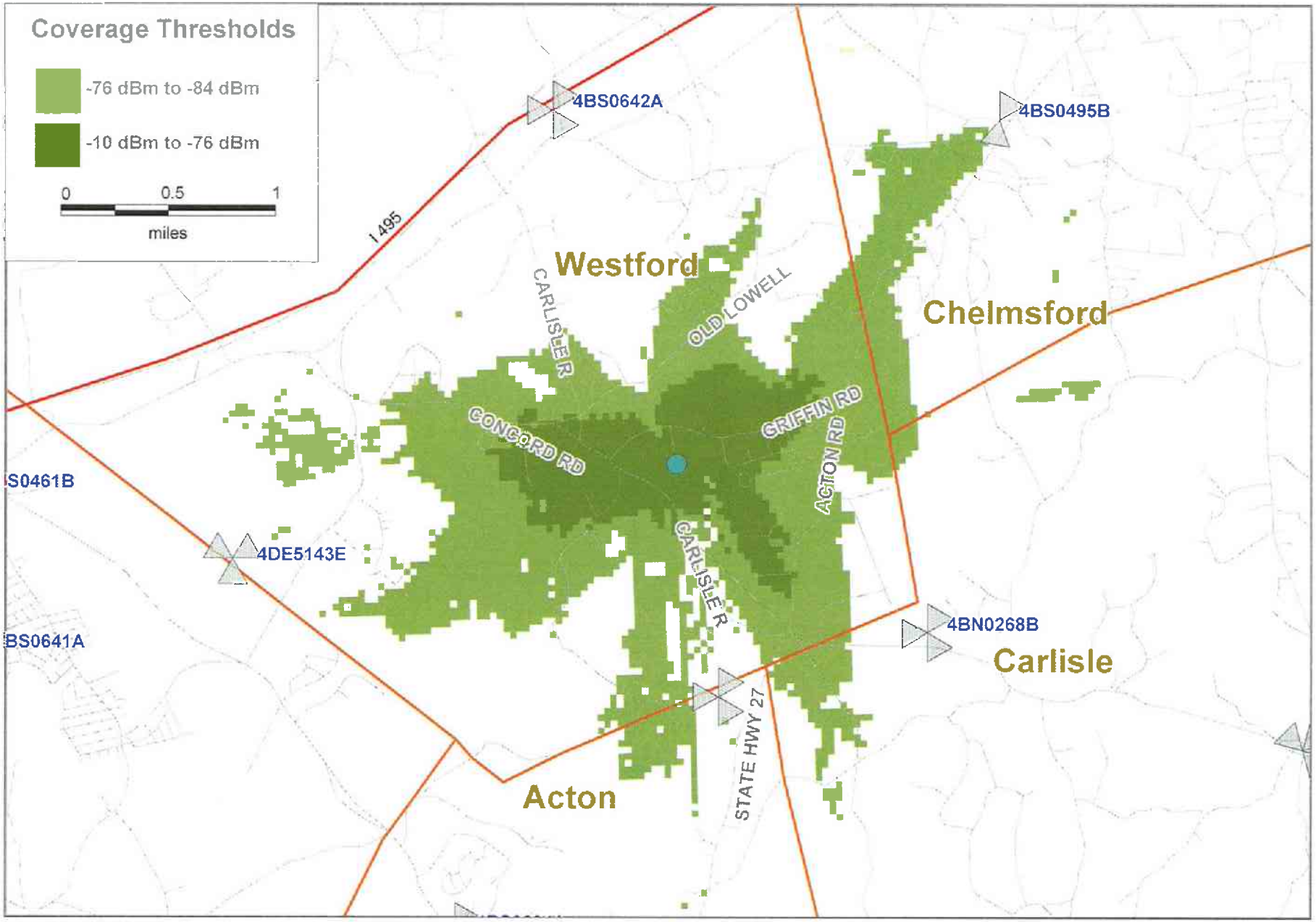
The Applicant looks forward to discussing this matter further with the Board at the next public hearing on the application.

Sincerely,

Scott F. Lacy

Enclosures

cc: David Maxson (w/ encl.)

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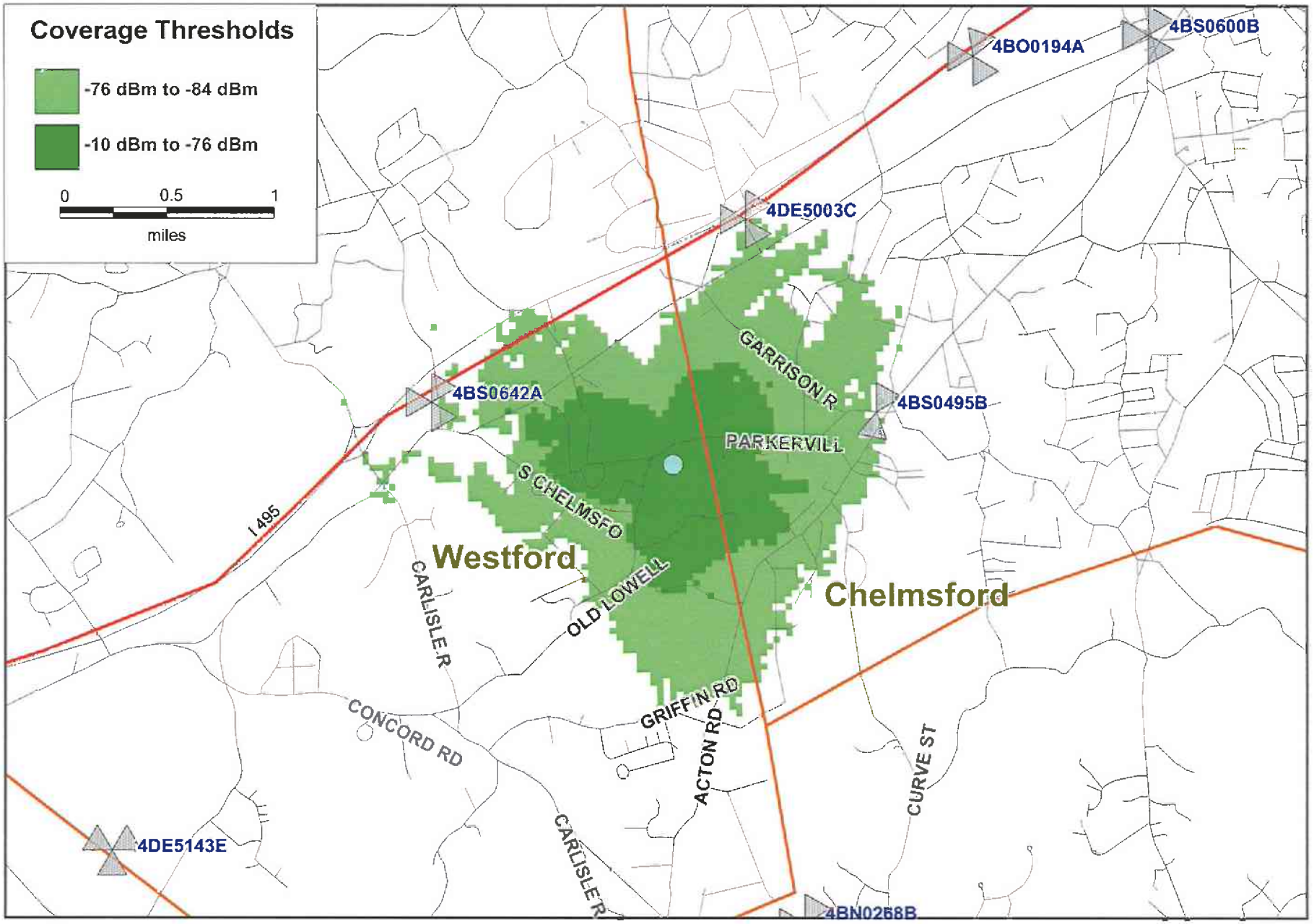
Westford Hill Site @ 65'

Coverage Threshold Descriptions
Dark Green: In-Building Coverage ( Residential)
Light Green: In-Vehicle Coverage


Coverage Thresholds
-76 dBm to -84 dBm
-10 dBm to -76 dBm
0
0.5
1
miles
4BS0600B
4BO0194A
4DE5003C
GARRISON R
4BS0642A
4BS0495B
PARKERVILL
S CHELMSFO
I 495
Westford
Chelmsford
CARLISLE R
OLD LOWELL
GRIFFIN RD
CONCORD RD
ACTON RD
CURVE ST
4DE5143E
CARLISLE R
4BN0268B
N
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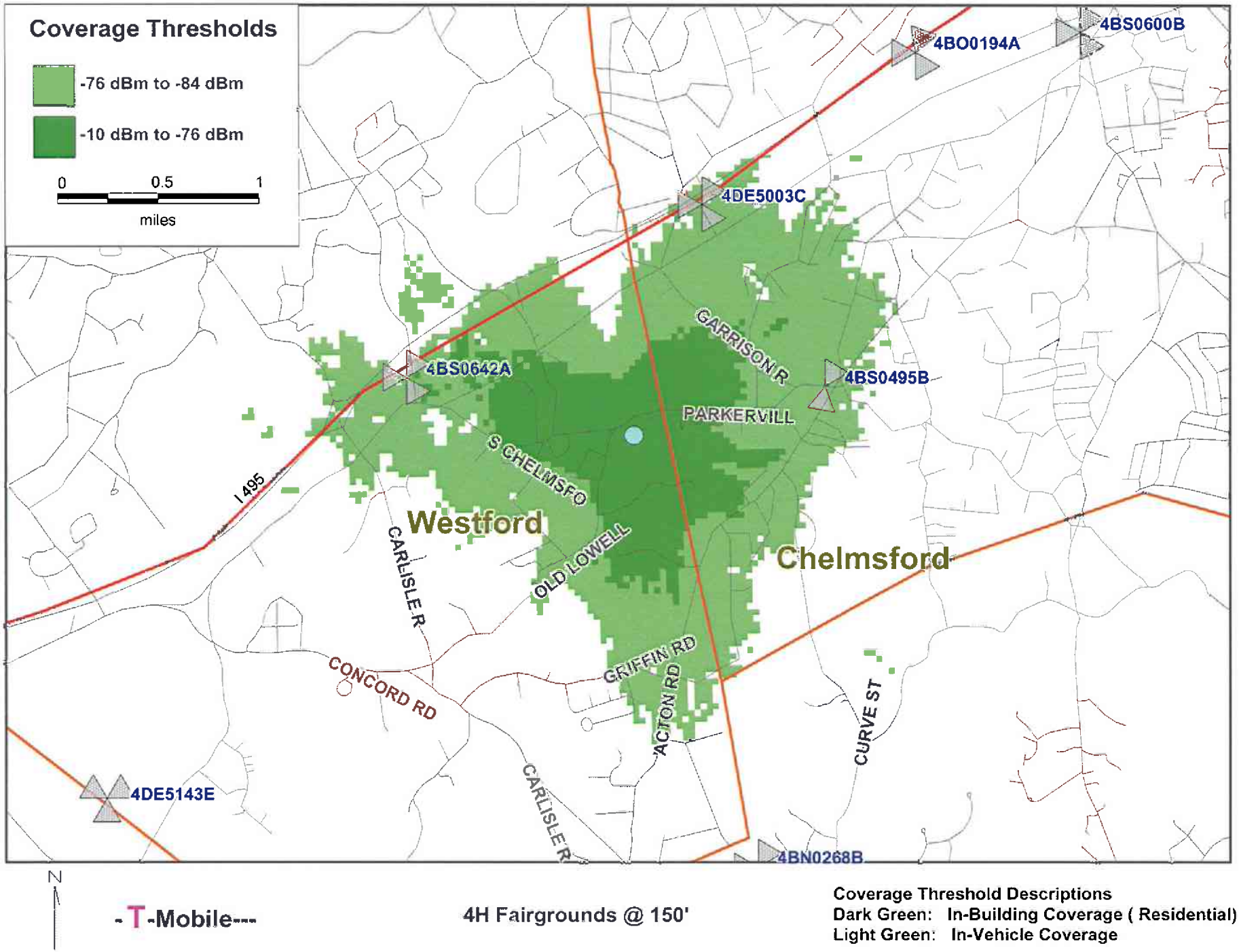
4H Fairgrounds @ 100'
Coverage Threshold Descriptions
Dark Green: In-Building Coverage ( Residential)
Light Green: In-Vehicle Coverage


Coverage Thresholds
-76 dBm to -84 dBm
-10 dBm to -76 dBm
0
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miles
4BS0600B
4BO0194A
4DE5003C
GARRISON R
4BS0642A
4BS0495B
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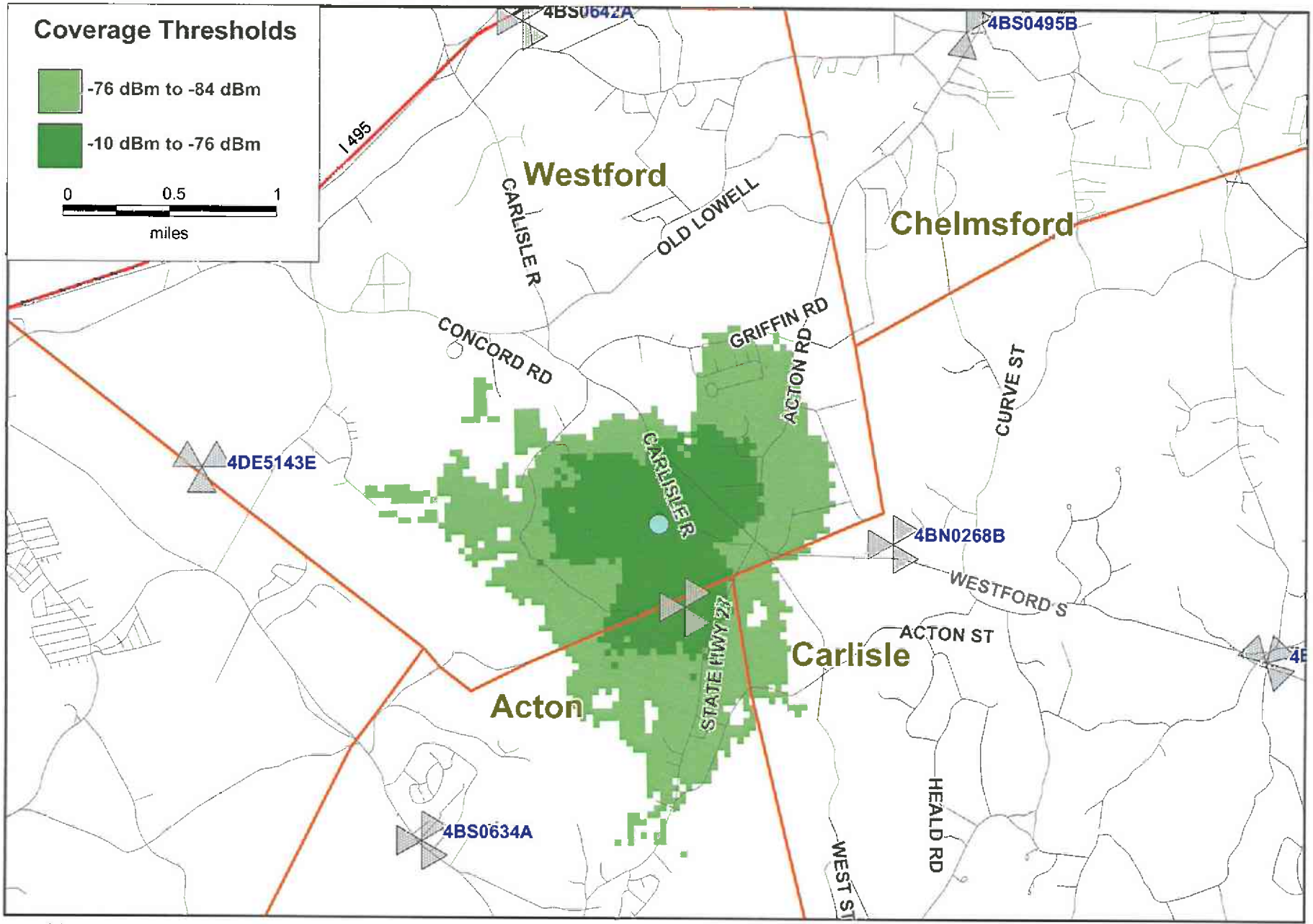
I 495
Westford
Chelmsford
CARLISLE R
OLD LOWELL
GRIFFIN RD
CONCORD RD
ACTON RD
CURVE ST
4DE5143E
CARLISLE R
4BN0268B
N
- T-Mobile---
4H Fairgrounds @ 150'
Coverage Threshold Descriptions
Dark Green: In-Building Coverage ( Residential)
Light Green: In-Vehicle Coverage


Coverage Thresholds
-76 dBm to -84 dBm
-10 dBm to -76 dBm
0
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1
miles
4BS0642A
4BS0495B
I 495
Westford
CARLISLE R
OLD LOWELL
Chelmsford
CONCORD RD
GRIFFIN RD
ACTON RD
CURVE ST
4DE5143E
CARLISLE R
4BN0268B
WESTFORD S
ACTON ST
Carlisle
STATE HWY 2A
Acton
4BS0634A
HEALD RD
WEST ST
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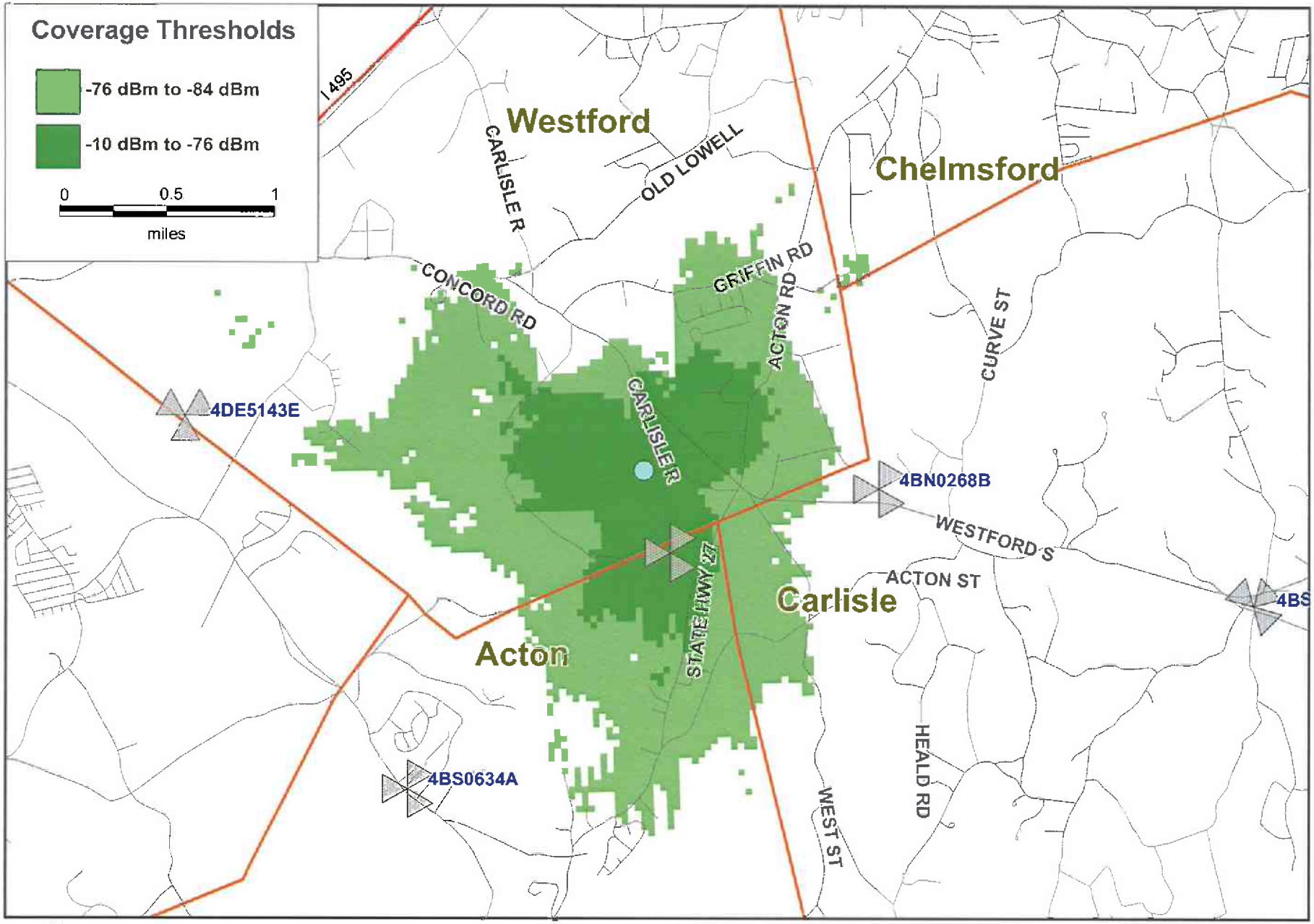
ButterBrook @ 100'
Coverage Threshold Descriptions
Dark Green: In-Building Coverage ( Residential)
Light Green: In-Vehicle Coverage


Coverage Thresholds
-76 dBm to -84 dBm
-10 dBm to -76 dBm
0
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miles
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Westford
Chelmsford
Carlisle
Acton
CARLISLE R
OLD LOWELL
CONCORD RD
GRIFFIN RD
ACTON RD
CURVE ST
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WESTFORD S
ACTON ST
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HEALD RD
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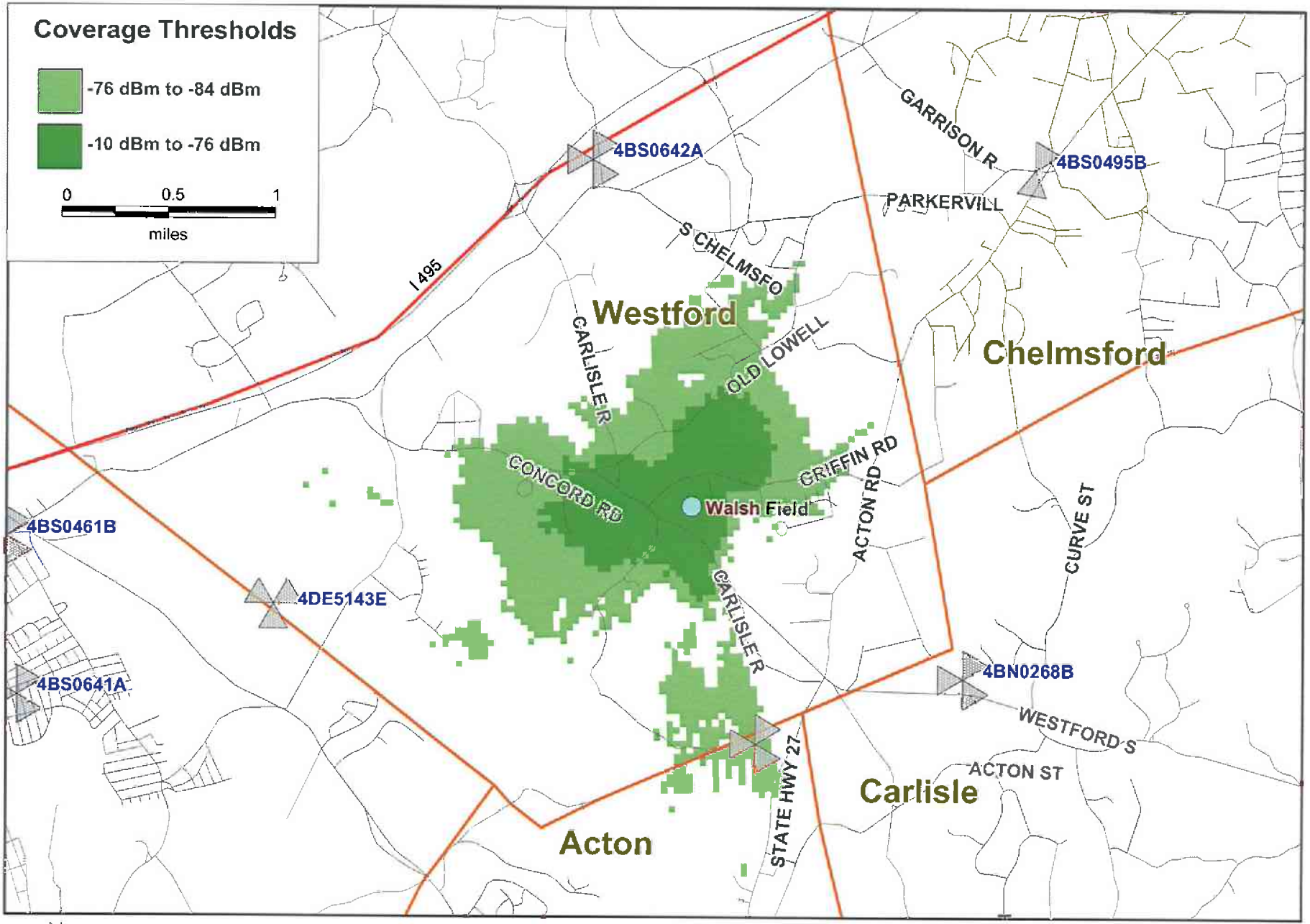
- T-Mobile---
ButterBrook @ 150'
Coverage Threshold Descriptions
Dark Green: In-Building Coverage ( Residential)
Light Green: In-Vehicle Coverage

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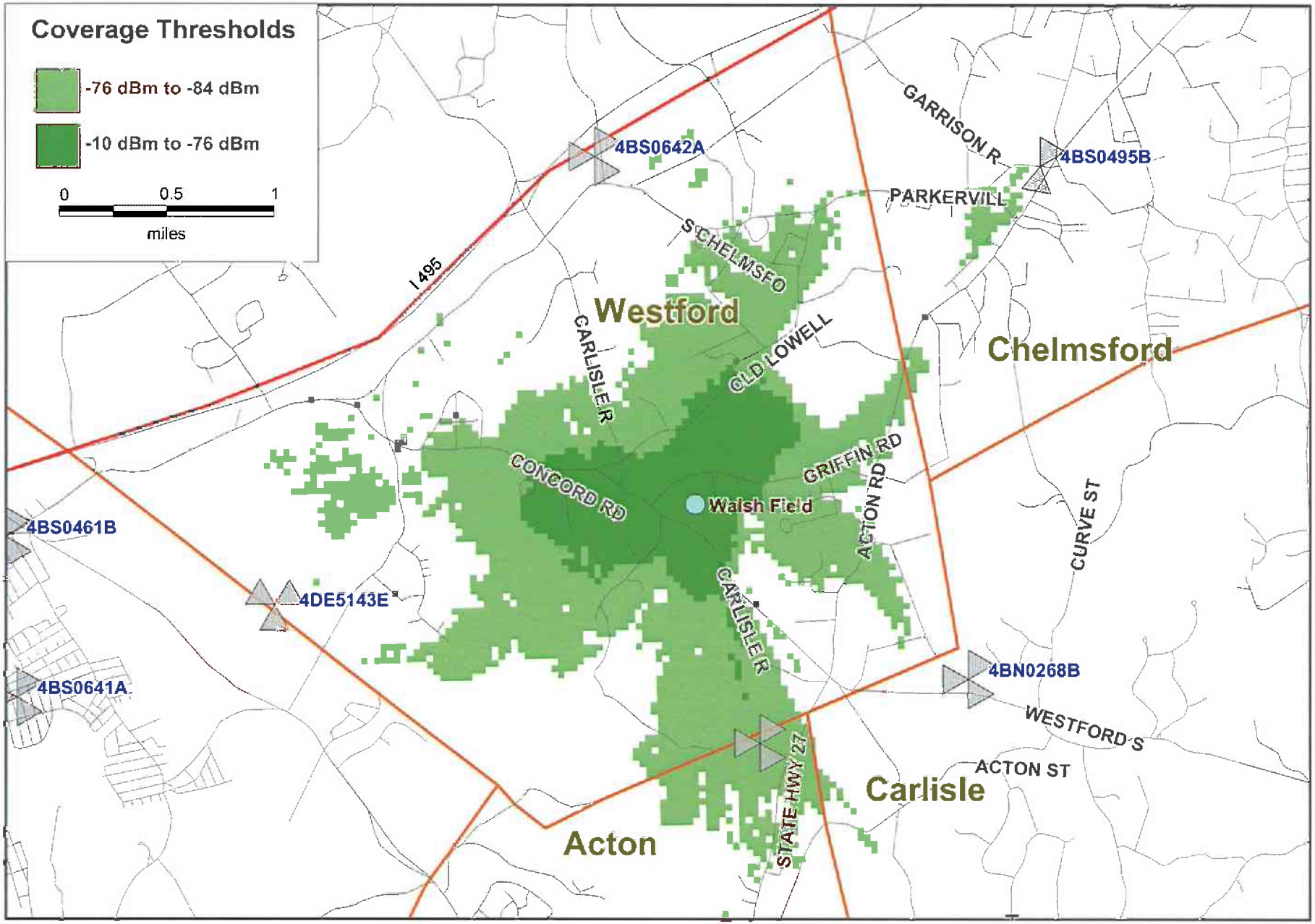
Walsh Field @ 100'

Coverage Threshold Descriptions
Dark Green: In-Building Coverage ( Residential)
Light Green: In-Vehicle Coverage

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Walsh Field @ 150'

Coverage Threshold Descriptions
Dark Green: In-Building Coverage ( Residential)
Light Green: In-Vehicle Coverage